P73 68-0120

DDI-6003-68

HIGH PRECISION STEREO COMPARATOR

FY 1968

Technical Services & Support Group

Development & Engineering Division

February 1968

SECRET

Executive Registry
68-1220

NPIC/D-40-68

1 MAR 1968

MEMORANDUM FOR: Deputy Director of Central Intelligence

THROUGH : Executive Director-Comptroller
Director, Office of Planning, Programming and Budgeting
Deputy Director for Intelligence

SUBJECT : Request for a Split-Funded Contract with [redacted] 25X1
25X1 [redacted]
for the Fabrication of a High Precision Stereo Comparator
at a Cost of [redacted] from FY 1968) 25X1

1. This memorandum requests approval for the commitment of funds for a follow-on R&D contract. The specific request is stated in paragraph 8.

2. In September of 1964, the Technical Intelligence Division of NPIC requested development of a high precision stereo measuring instrument. The stated requirement was for a "stereo comparator capable of measuring, with precision, conjugate imagery at a high production rate that can accommodate different scales and varying perspective distortions, that is, engineered to eliminate human fatigue; and must have magnifications capable of exploiting both present and anticipated resolutions of future reconnaissance systems".

3. In FY-1965, contracts were awarded to the [redacted] 25X1
25X1 [redacted] and the [redacted] 25X1
25X1 [redacted] for competitive parallel feasibility studies for a high precision stereo comparator. The results of these studies indicated that most of the design goals could be achieved, but that a certain degree of risk existed in certain areas. The two companies submitted proposals for the design, development, and fabrication of the proposed instrument and the [redacted] proposal was judged to be superior. Due to the risk factors in- 25X1
volved in advancing the state-of-the-art, the customer and the contractor agreed that the design and development phase and the fabrication phase should be separated into two contracts. The customer would assume the risk by awarding a cost plus award fee contract for the design and development of the system, and the contractor would assume the risk in the fabrication of the system by accepting a fixed price incentive type contract.

4. On 9 January 1967, [redacted] was awarded a cost 25X1
plus award fee contract for the design and development of a high precision stereo comparator. Under this 12-month contract [redacted] was required to produce 25X1

SECRET

SUBJECT: Request for a Split-Funded Contract with [redacted] for the Fabrication of a High Precision Stereo Comparator at a Cost of [redacted] from FY 1968)

design drawings for the entire system so that a third party could build the equipment. A limited amount of breadboarding and feasibility testing was authorized, but actual fabrication was not to take place. The work on this contract has been completed by [redacted] and is of excellent quality. The computations and design work indicate that the high performance specifications can be satisfied. [redacted] used two major subcontractors on this project; [redacted] for the design of the optical system and [redacted] for the design of the image correlation system. Total cost of this phase, including subcontracts, was [redacted]

a. Optical System Subcontract - [redacted] prepared development objectives for the optical system and solicited bids from over 120 domestic and foreign optical companies. [redacted] visited the facilities of the 6 contractors submitting the most promising proposals. [redacted] selected [redacted] as the best qualified vendor and NPIC agreed with the selection after consultation with optical experts under contract to us. The performance of [redacted] on this contract has been excellent.

b. Image Correlation System - [redacted] prepared development objectives and solicited proposals from the limited number of vendors who are expert in this field. [redacted] was selected as the most capable, and the design work produced by [redacted] has justified the selection.

5. Under the [redacted] contract for the design phase, [redacted] was required to submit a fixed price bid for fabrication of the system. In compliance with this requirement [redacted] has submitted a fixed price bid of [redacted] plus fee to fabricate and install the system in a 21-month period--the fee is separate because it is an incentive type contract. The proposal for FY 1968 includes: the instrument and supporting equipment, training of operators, operator's and maintenance manuals, preliminary and final acceptance tests, transportation and installation of the completed instrument at NPIC. This fixed price bid of [redacted] includes fixed price subcontracts to [redacted]

6. [redacted] proposal recommends the use of [redacted] and [redacted] as subcontractors in fabricating the image correlation system and the optical system.

a. Image Correlation System - [redacted] has designed this complex system, and many of the components are of an [redacted] proprietary nature. [redacted] and [redacted] had a good working relationship during the design phase and have successfully managed the interface relationship. It is strongly recommended that [redacted] be authorized to use [redacted] as a subcontractor for this system. [redacted] has submitted a fixed price bid of [redacted] for fabrication of this system.

SUBJECT: Request for a Split-Funded Contract with [redacted] for the Fabrication of a High Precision Stereo Comparator at a Cost [redacted] Plus Fee

b. Optical System - The [redacted] which has done the job of designing the optical system has submitted a fixed price bid of approximately [redacted] to fabricate the optical system. At this point in time on the basis of a preliminary study of the technical aspects of [redacted] work, it would appear advantageous to permit [redacted] to go ahead with the fabrication. We realize, however, that there are important policy and finance matters to be considered before making a final decision on the question of using a foreign vendor for this purpose. NPIC is currently reviewing possible alternatives to [redacted] and in the coming weeks will be able to make a considered judgment. One thing appears clear, if a foreign vendor is to be ruled out, the costs of the fabrication of the optical system using an American firm will be considerably greater, perhaps close to [redacted] as compared to [redacted]s bid of [redacted]

7. The results of the recently completed design and development contract indicate that the requirements, as set forth in Paragraph 2, can be met or exceeded. The proposed instrument will utilize a laser interferometer measuring system, air bearing stages, and a high resolution optical system to provide a capability for precision measurement. The high performance optical system with a zoom range of 10 to 200 magnification, anamorphics, and image rotation will accommodate different scales and varying perspective distortions. The image correlation system will provide a capability for high production rates and reduce human fatigue by automatically tracking, optically linking one stage to the other, keeping the imagery in stereo fusion, and perform the various optical settings as the operator scans the stereo imagery. Capabilities have been provided so that imagery from all anticipated future reconnaissance systems can be accommodated.

8. It is requested that approval be granted to negotiate with the [redacted] for a contract to fabricate the high precision stereo comparator. It is estimated that the total cost of this program will be [redacted] plus fee. Assuming a target incentive fee of 10%, this would make the total price [redacted] Because of the large sum involved, it is recommended that this program be split-funded over three fiscal years (1968 through 1970). Authorization is requested to commit [redacted] of FY-1968 funds to this contract with a stipulation that additional FY-68 funds can be added if available. Balance of funding will be spread between FY 1969 and FY 1970 Center R&D funds.

SECRET

25X1

SUBJECT: Request for a Split-Funded Contract with [redacted] for the Fabrication of a High Precision Stereo Comparator at a Cost of [redacted] Plus Fee [redacted] from FY 1968)

25X1 25X1 25X1

9. The sum described in paragraph 8 above is based upon our best judgments of costs using [redacted] to fabricate the optical system. If it proves necessary to avoid contracting with a foreign firm the total cost would rise to close to [redacted] In the Center's judgment, the stereo comparator would be worth the additional money. We will, of course, report through these same channels our findings and recommendation with regard to the fabrication of the optical system. Nothing in this paper should be construed to commit the Agency to a contract or subcontract with [redacted] pending the results of our study and the referral of these results to higher authorities for approval.

25X1 25X1 25X1

[redacted]

ARTHUR C. LUNDAHL
Director
National Photographic Interpretation Center

Attachments:
Catalog Form
[redacted]

25X1

APPROVED: [redacted]
for
Deputy Director for Intelligence

5 March 68
Date

25X1

APPROVED: [redacted]
~~Vice Admiral, U.S. Navy~~
~~Deputy Director of Central Intelligence~~
Ex. Dir - Comp.

12 Mar 68
Date

Distribution:
Original - NPIC/TSSG/SS/LB (After approval)
1 - DDCI
1 - Exec. Dir.-Comptroller
1 - O/PP&B
1 - DDI
2 - NPIC/ODir
2 - NPIC/TSSG

SECRET